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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/574,626	05/19/2000	Jose Remacle	VANM159.001AUS	7665

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EXAMINER

ZHOU, SHUBO

ART UNIT	PAPER NUMBER
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1631

DATE MAILED: 06/05/2002

15

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/574,626

Applicant(s)

REMACLE ET AL.

Examiner

Shubo "Joe" Zhou

Art Unit

1631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, and 3-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Applicant's amendment and request for reconsideration in Paper #12, filed on 3/5/02, is acknowledged and the amendments entered.

Currently, claims 1, and 3-33 are pending and under examination.

Applicant's arguments in response to the previous Office Action of 8/31/01 and the Declaration have been fully considered but they are not deemed to be persuasive. Rejections and/or objections not reiterated from previous Office action are hereby withdrawn. The following rejections and/or objections are either reiterated from the previous Office action(s) or newly added, and constitute the complete set presently being applied to the instant application.

Claim Rejections-35 USC § 112

The following is a quotation of the **second** paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, and 3-33 are rejected under 35 U.S.C. 112 , second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 14, as well as their dependent claims are amended to include a new limitation of a precipitate present "at the location of ...". The term "location" is a relative term. The American Heritage® Dictionary of the English Language, Fourth Edition defines the term as "a place where something is or could be located; a site" (<http://www.bartleby.com/61/9/L0220900.html>). Absent a clear definition for the term,

the metes and bounds of the "location" or place or site is not clear, thus rendering the claims indefinite.

Claim Rejections-35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e) that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1, 6, 28 and 33 are rejected under 35 U.S.C. § 102(e) as being anticipated by Lockhart et al. (US patent No: 6,344,316, Issued Feb. 5, 2002, Filed June 25, 1997).

This rejected is necessitated by the amendment to claim 1 with regard to the new limitation of "deposit of a metallic compound".

Lockhart et al. disclose a method for detecting nucleic acids using oligonucleotide array. The method comprises putting into contact target nucleic acids with capture molecules, i.e. oligonucleotides, which are fixed upon a surface of solid support according to an array with a density of more than about 60 different oligonucleotides per cm². See columns 2 and 5. The method also comprises labeling the targets with different means including colorimetric labels such as colloidal gold. The binding of the oligonucleotides with targets leads to formation of precipitate. See column 24. It would have been readily recognized by an ordinary skill in the art that the amount of colorimetric precipitates on gold particles indicates the amount of binding and that colloidal gold involved colorimetric labeling forms precipitate at the location of the

binding. Lockhart et al. disclose that the sample for the target is in a biological sample. See column 2, line 34.

Claim Rejections-35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1, 7-9 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lockart et al. (US patent No6,344,316, Issued Feb. 5, 2002, Filed June 25, 1997) in view of Van Ness et al. (US patent No. 6,027,890, Issued Feb. 22, 2000, Filed July 22, 1997).

This rejection is necessitated by the amendment to claim 1 with regard to the new limitation of "deposit of a metallic compound".

As set forth above, Lockart et al. disclose a method for detecting nucleic acids using oligonucleotide array. As set forth in the previous Office action, Van Ness et al. disclose a method for detecting biomolecules using array involving the formation of precipitates and determining the presence of precipitates with means such as a CCD-linked microscope (column 76, lines 31-44). The binding between the target and capture molecule are hybridization between two nucleotide sequences (column 74 and column 76, lines 9-29), as required in the instant claims. The biomolecules can be nucleic acids, proteins/antigens, antibodies, or receptor-ligand pair (column 2). As stated above, the presence of the precipitate is detected by a microscope equipped with a CCD camera. It

would have been readily recognized that the image is obtained by reflection of a light beam upon the precipitate, as is recognized in the art that light reflection is one of the working principles in such a microscope equipped with a CCD camera. The methods disclosed by Van Ness et al. make use of the well-known system of biotin-streptavidin/horseradish peroxide (column 76) and the precipitate is formed using a precipitating substrate. Thus, it is inherent that such a precipitate is formed on the surface of a particle associated with the target compound, as required in the instant claims. Since Lockart et al. provide high density array and state that the method is rapid and simple to apply, and since Van Ness et al. provide methods for detecting not just nucleic acids, but also others like proteins/antigens, antibodies, or receptor-ligands, one of ordinary skill in the art would have been motivated to combine the references to generate a method of using high density array and used for different biomolecules. Since both references provide detailed procedures and guidance, there would have been a reasonable expectation of success.

Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abouzied et al. (Journal of AOAC International, Vol. 77, No. 2 (MAR-APR), pp. 495-501, 1994) in view of Howard III et al. (IDS document: EP 0646784A1, 05-04-95) and Van Ness et al. (US patent No. 6,027,890, Issued Feb. 22, 2000, Filed July 22, 1997), and in further view of Roth et al. (US patent # 5,902,727, Issued May 11, 1999, application filing date: Sep. 4, 1996) and Terstappen et al. (US patent # 5,646,001, July 8, 1997).

This rejection is reiterated from the previous Office action and maintained for reasons of record.

Applicants first argue that the references do not provide motivations to combine. This is not found persuasive because the Office action of 2/22/01 explains motivations to combine the references in multiple places, such as page 5, first paragraph, page 6, first paragraph and last paragraph and page 7, first paragraph. However, applicants' response on 7/12/01, and again on 3/5/02 do not point out why those motivations are improper. Applicants then argue that the references do not teach/suggest all the elements of the claims. Specifically, applicants argue that the references do not teach/suggest "deposit of a metallic compound" of claim 1 or a "metallic precipitate" is formed "at the location" of bound compounds. This is not found persuasive because the Office action of 2/22/01 deals with the issue extensively and the references do suggest these elements. See page 6, last paragraph and page 7, first paragraph. Fluorescence, colorimetric, metallic compound, magnetic metallic compound, the reduction of silver in the presence of colloidal gold particles, etc. are common means of functional equivalents used in different assays in the prior arts as summarized in Roth et al.: "the binding of such probes to the target substance is typically detected microscopically by the use of direct labeled probes such as fluorophores, enzyme conjugates, gold particles and the like" and "recent advances in detection systems have improved the sensitivity and resolution of the probe localization and include such methods as immunogold with silver intensification, peroxidase-anti-peroxidase..." (see column 1). Terstappen et al. also summarize the use of metallic and magnetic metallic compounds in biochemical separation and detection (see the bridging paragraph between columns 2 and 3). Thus, it would be obvious for one to combine these techniques with the

teachings of Abouzied et al. and Howard III et al. to practice the detection of precipitates with these techniques as required in the instant claims. With respect to the limitation that precipitate is formed at the location of the bound compound, the previous Office actions also addressed the issues. In the response of 2/22/01, applicants amended claims to replace "at the location" with "within a few micrometers", the Office action of 8/31/01 addressed the limitation, but in the response of 3/5/02, applicants deleted the limitation of "within a few micrometers" and reused the phrase "at the location". As set forth in the section of rejection under 35 USC 112, second paragraph, the term "location" renders claim 1 and its dependent claims indefinite. Nevertheless, it is well recognized in the field that the use of gold particles would form a precipitate at the location of the bound compound.

Claims 27, and 29-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abouzied et al. (Journal of AOAC International, Vol. 77, No. 2 (MAR-APR), pp. 495-501, 1994) in view of Van Ness et al. (US patent No. 6,027,890, Issued Feb. 22, 2000, Filed July 22, 1997), and Gingeras et al. (US patent # 6,228,575, issued May 8, 2001, filed Feb. 7, 1997).

This rejection is reiterated from the previous Office action and maintained for reasons of record. Applicants argue that the apparatus taught/suggested by the references cannot be used for measuring precipitate formed at the location of the bound target. This is not found persuasive because as set forth above, the term "location" is a relative term that renders the claim indefinite. Location of the bound compound can be

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anywhere near the compound. Thus, the apparatus taught/suggested by the references shall be able to ect precipitate formed within 50 micrometers of the bound compound as taught by Van Ness, which is interpreted as being at the location of the bound compound. Furthermore, since the references teach/suggest the exact elements of the instantly claimed apparatus, it would be recognized by an ordinary skill in the art that the apparatus taught/suggested by the references and the instantly claimed one would have the same functions.

Conclusion

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993)(See 37 CFR § 1.6(d)). The CM1 Fax Center number is either (703) 308-4242 or (703)305-3014.

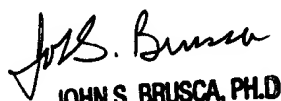
Any inquiry concerning this communication or earlier communications from the examiner should be directed to:
Shubo "Joe" Zhou, Ph.D., whose telephone number is (703) 605-1158. The examiner can normally be reached on Monday-Friday from 8 A.M. to 4 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Woodward, Ph.D., can be reached on (703) 308-4028.

Any inquiry of a general nature or relating to the status of this application should be directed to Patent Analyst Tina Plunkett whose telephone number is (703)-305-3524, or to the Technical Center receptionist whose telephone number is (703) 308-0196.

S. "Joe" Zhou, Ph.D. 

Patent Examiner


JOHN S. BRUSCA, PH.D.
PRIMARY EXAMINER